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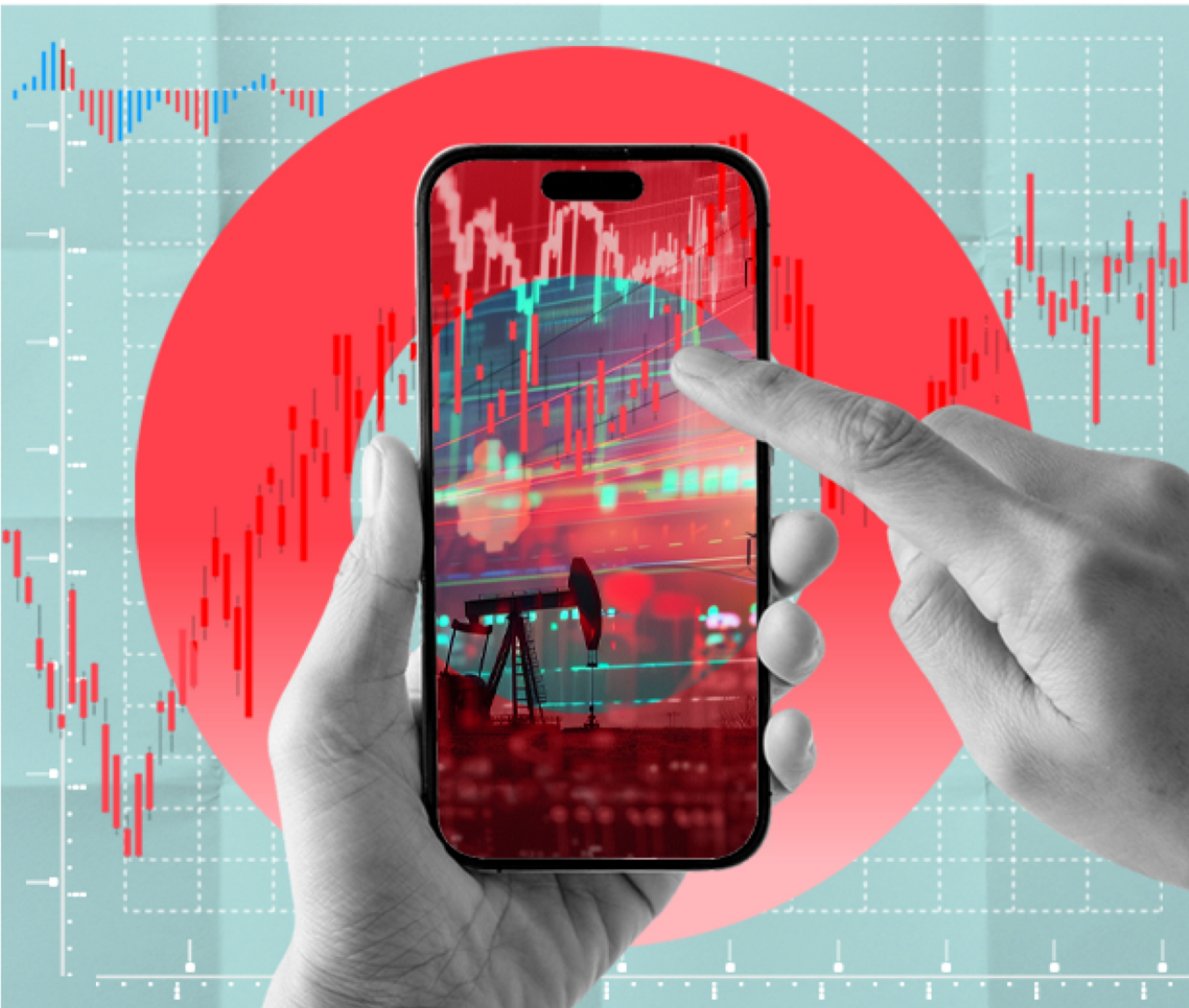
Reimagining Energy Supply, Trading & Risk Management for **Oil & Gas**

Create a data-centric digital ecosystem across Supply, Trading and Risk to unlock value by increasing agility, streamlining business processes, and enabling next-generation decision support and portfolio optimization capabilities.

Market changes have accelerated
the case for transformation

OPPORTUNITY CREATED BY COMPLEXITY AND VOLATILITY

Global energy markets are becoming increasingly complex and experiencing unprecedented levels of volatility. Energy supply is constrained due to years of underinvestment, and its growth is being challenged by the financial impacts of the energy transition and rising inflation. Additionally, geopolitical unrest in Europe has exacerbated supply chain disruptions and reinforced the demand shift that began during the pandemic.

However, with complexity and volatility comes a unique opportunity to create exponential value by ensuring your organization has the systems and processes in place to respond with agility.

ADAPTING TO THE EVOLVING AND INTERCON-NECTED COMMODITY MARKET LANDSCAPE

The rapid evolution and increasingly interconnected nature of global energy markets has accelerated the case for transformation. To thrive during the energy transition, Supply and Trading organizations must adapt quickly and develop new capabilities and digital pipelines to capture opportunities across geographies and asset types.

EXTERNAL FACTORS IMPACTING SUPPLY & TRADING

- **Geopolitical unrest and the energy transition** are shifting global energy market dynamics and the Energy Supply & Trading portfolio mix.

- **Hydrocarbon supply growth is challenged** by rising costs, longer lead times, increasing regulation, and fiscal constraints associated with rising inflation, increasing carbon taxes, and long-term reserve devaluation.

- Oil & Gas and Power & Utility **markets and infrastructure are becoming increasingly interconnected,** driving the need for greater transparency and risk management across commodity value chains.

- **New energies and new energy markets** are rapidly emerging and changing the commodity trading landscape.

- **Emissions data** is becoming increasingly intertwined with trading data, and **carbon credit trading** is becoming a core capability.

- Energy companies are increasingly **committing to net-zero** emissions targets, driving the need for greater transparency, auditability, and full-cycle cost analysis.

EVOLUTION OF THE COMMODITY MARKET LANDSCAPE
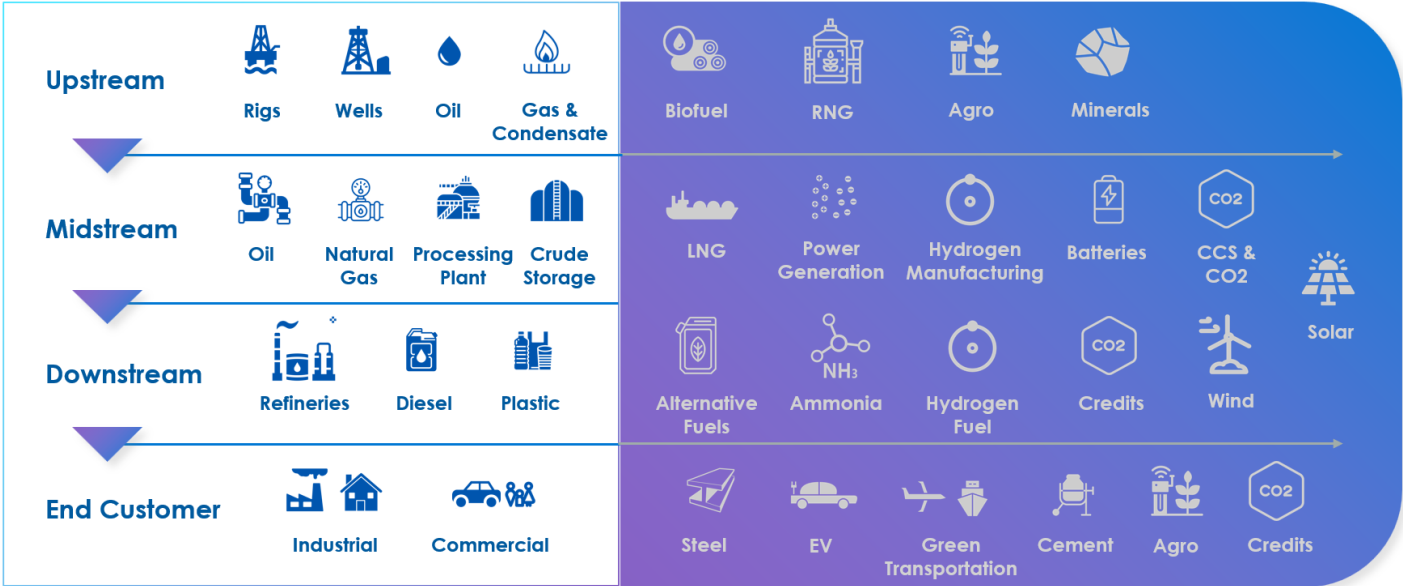
Addressing aging systems, manual business processes, and the proliferation of data silos across Supply, Trading and Risk to increase agility and harness the power of artificial intelligence (AI) is a critical step in capturing value during the Energy Transition.

Conducting business
across the front, middle, and back office

MANAGING WITH LEGACY INFRASTRUCTURE AND MANUAL PROCESSES

Supply and Trading organizations rely on a suite of specialized commodity/energy trading and risk management (C/ETRM) packages, shadow systems, and extensive manual processes to manage their business.
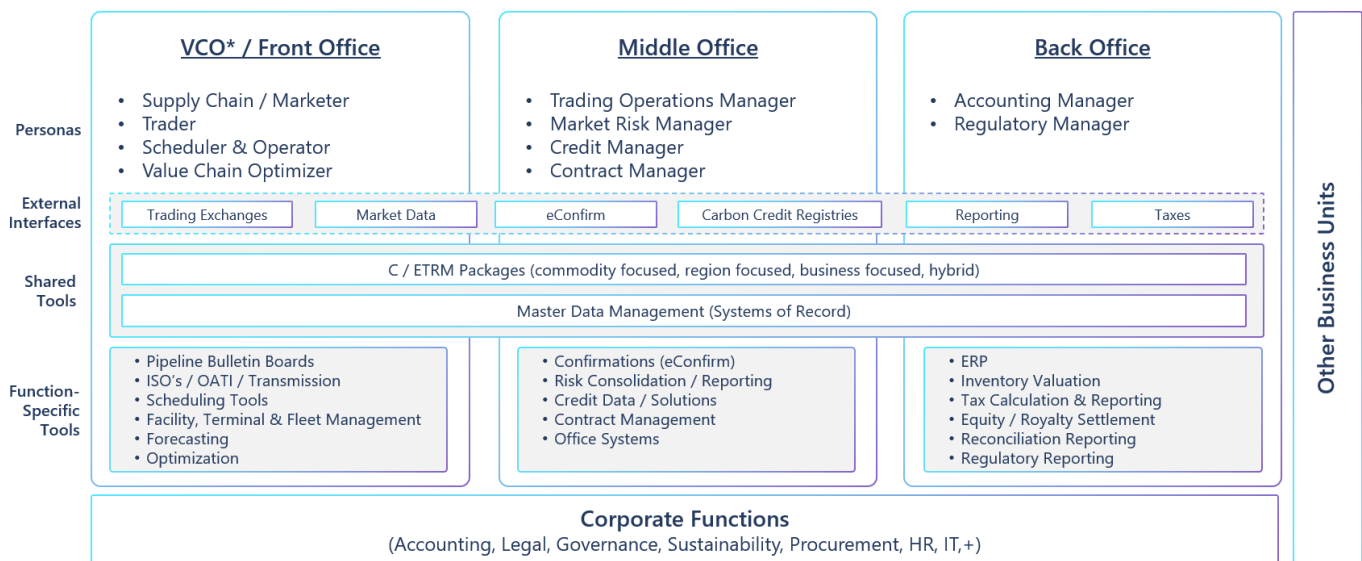
These specialized C/ETRM packages are effective for single commodity, single market operations, but they were not designed to support cross-commodity, multi-jurisdiction trading and risk analysis. Additionally, most C/ETRM systems lack integrated deal capture, contract management, scheduling, and reporting capabilities, and have limited front-office and mid-office capabilities.

Common efforts to address C/ETRM system capability gaps have resulted in complex business architectures that are inherently inflexible, inefficient, and costly to support. The prevalence of disconnected, highly customized solutions, complex system integrations, and manual data entry and reconciliation processes in these C/ETRM-centric business architectures restrict agility, hinder innovation, and increase the level of risk associated with security breaches and human error.

INTERNAL CHALLENGES FOR SUPPLY & TRADING ORGANIZATIONS

- Prevalence of **inflexible, commodity-specific, on premise core C/ETRM systems** with overlapping functionalities causes data silos and process inconsistency.
- **Data silos, limited automation, and a lack of collaboration** tools restrict timely, data-driven trade and risk analysis and hinder the use artificial intelligence to unlock next-generation business capabilities.
- 'System of record' functionality of C/ETRM systems **limits the ability to support front office requirements** including forecasting, pricing, and negotiations.
- Commodity-specific system nuances drive **over-customization and complex, multi-system architectures** which are costly to support, difficult to integrate, and result in latency issues.
- **Capability gaps, limited solution options, and the slow pace of C/ETRM modernization** hampers the ability to optimize, innovate and support the Energy Transition.
- **Extensive manual intervention** in data aggregation, analysis and reporting across the front, mid and back office increases the risk of human error and security breaches and limits the time available for higher value-add activities.

COMMON SUPPLY, TRADING AND RISK PERSONAS AND TOOLS

	VCO* / Front Office	Middle Office	Back Office	
Personas	• Supply Chain / Marketer • Trader • Scheduler & Operator • Value Chain Optimizer	• Trading Operations Manager • Market Risk Manager • Credit Manager • Contract Manager	• Accounting Manager • Regulatory Manager	
External Interfaces	Trading Exchanges · Market Data	eConfirm · Carbon Credit Registries	Reporting · Taxes	
Shared Tools	C / ETRM Packages (commodity focused, region focused, business focused, hybrid) Master Data Management (Systems of Record)			Other Business Units
Function-Specific Tools	• Pipeline Bulletin Boards • ISO's / OATI / Transmission • Scheduling Tools • Facility, Terminal & Fleet Management • Forecasting • Optimization	• Confirmations (eConfirm) • Risk Consolidation / Reporting • Credit Data / Solutions • Contract Management • Office Systems	• ERP • Inventory Valuation • Tax Calculation & Reporting • Equity / Royalty Settlement • Reconciliation Reporting • Regulatory Reporting	

Corporate Functions
(Accounting, Legal, Governance, Sustainability, Procurement, HR, IT,+)

*Value Chain Optimization

Moving away from a C/ETRM-centric architecture and streamlining business processes across the front, mid and back office is necessary to reduce cost, complexity, and risk and address the rapidly evolving needs of the business.

Transform your Supply and Trading landscape
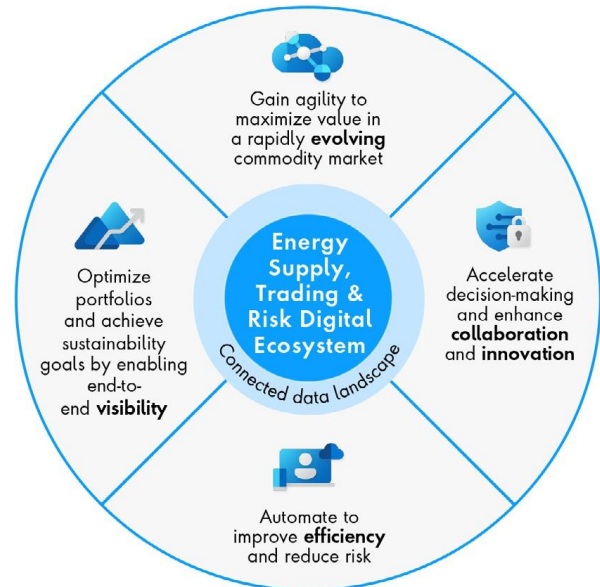## *to realize your business potential*

UNLOCKING VALUE WITH A DATA-CENTRIC DIGITAL ECOSYSTEM

Agility is crucial for businesses facing increasing geopolitical, regulatory, and financial market complexity, and an accelerating energy transition. Harnessing the power of data is imperative for organizations to gain and maintain competitive advantages as the world enters a new era defined by artificial intelligence.

To increase business agility and unlock value through AI-enabled next-generation capabilities, Supply and Trading organizations should recenter their systems and business operations around a connected data landscape.

Publicis Sapient and Microsoft envision that landscape as a ***data-centric Supply and Trading digital ecosystem*** that leverages an end-to-end, unified analytics platform and low code innovation tools to increase agility, streamline business processes, and enable next-generation decision support and portfolio optimization capabilities.

DIGITAL ECOSYSTEM VALUE DRIVERS

Gain agility to maximize value in a rapidly **evolving** commodity market

Accelerate decision-making and enhance **collaboration** and **innovation**

Automate to improve **efficiency** and reduce risk

Optimize portfolios and achieve sustainability goals by enabling end-to-end **visibility**

Energy Supply, Trading & Risk Digital Ecosystem

Connected data landscape

VALUE DRIVERS FOR SUPPLY AND TRADING MODERNIZATION

Creating a data-centric digital ecosystem across Supply, Trading and Risk that can adapt and scale with the energy industry unlocks value across five axes of digital transformation:

Agility

Decouple systems, federate data, and create a data-centric ecosystem in the cloud to reduce complexity, enhance security, increase transparency, and promote scalability, adaptability, and accessibility.

Collaboration

Create mobile user interfaces and executive dashboards with embedded workflow collaboration tools to improve accessibility, expedite information sharing, and enable rapid decision-making across the business.

Visibility

Centralize data and apply data modeling, integration, and artificial intelligence to enable end-to-end auditability, full-cycle cost analytics, and portfolio-level value chain optimization.

Innovation

Use low-code and no-code development tools, agile development principles, and a data-rich ecosystem to crowd-source business ideas and codify knowledge within modular applications.

Efficiency

Automate back-office processes for deal capture, contract management, scheduling, and reporting to reduce cycle time, mitigate risks and refocus resources on value creation. Leverage platform-enabled artificial intelligence to evolve trading algorithms and generate actionable insights in near real-time.

MAXIMIZING VALUE WHILE MAINTAINING CRITICAL OPERATIONS

Our approach to modernizing Supply and Trading builds upon existing capabilities to minimize disruption to the business while building a strong digital foundation to unlock value now and in the future. These objectives will be achieved by:

- Leveraging existing C/ETRM systems

- Embracing open, modular development

- Following foundational data integrity and security principles

- Enabling seamless business process automation to free up resources to focus on exceptions, validation, and analysis

- Integrating comprehensive artificial intelligence capabilities to accelerate data-driven decision-making and enhance trade and risk analysis

- Drastically improving the user experience to enable modern, mobile, real-time decision support and collaboration tools

- Reducing integration complexity to allow the business to unlock higher-value workflows without disrupting day-to-day business

- Enabling transformative capabilities and the creation of new revenue streams to accelerate value creation

- Delivering continuous value by employing agile methodology

Next-Generation Supply and Trading
Solution Framework

TRANSFORM YOUR BUSINESS WITH A DATA-CENTRIC DIGITAL ECOSYSTEM

Our vision for a data-centric Supply and Trading digital ecosystem includes three core architectural components:

1. **Service and integration layer** leveraging comprehensive AI and low-code capabilities to create next-generation business services and digital user channels.

2. **Unified commercial analytics platform** to securely bring together data and analytics capabilities across Supply, Trading and Risk and unlock high-value, AI-enabled workflows.

3. **Common commercial infrastructure layer** with core systems to execute and record business-critical processes across Supply, Trading and Risk.
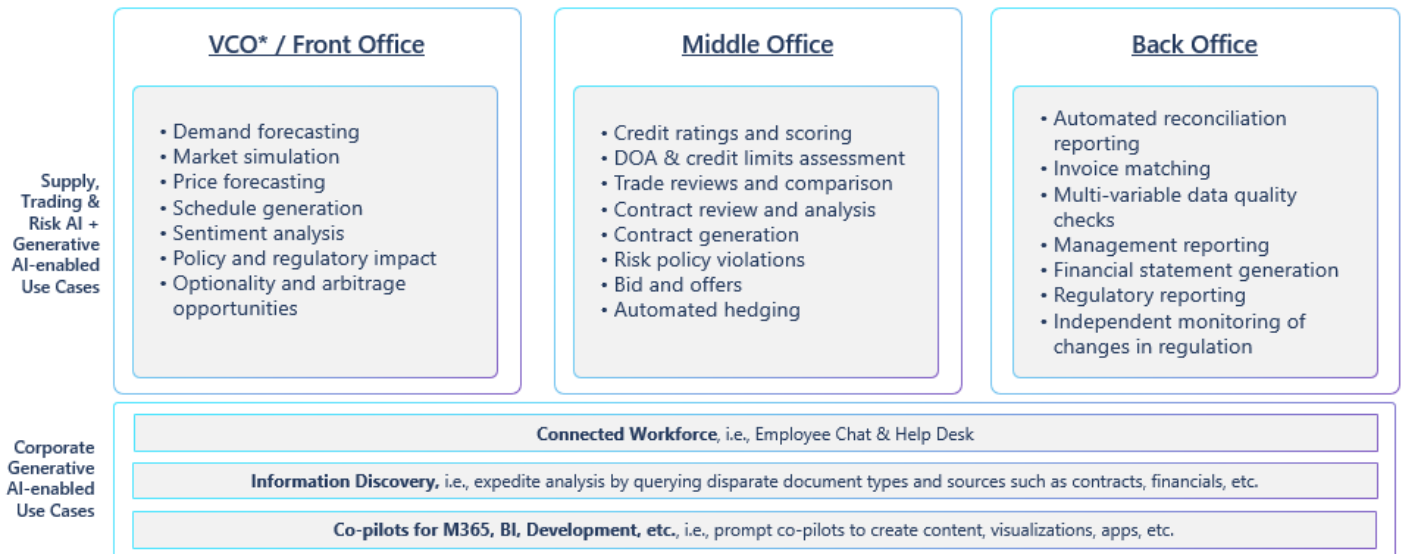
CONCEPTUAL SOLUTION ARCHITECTURE
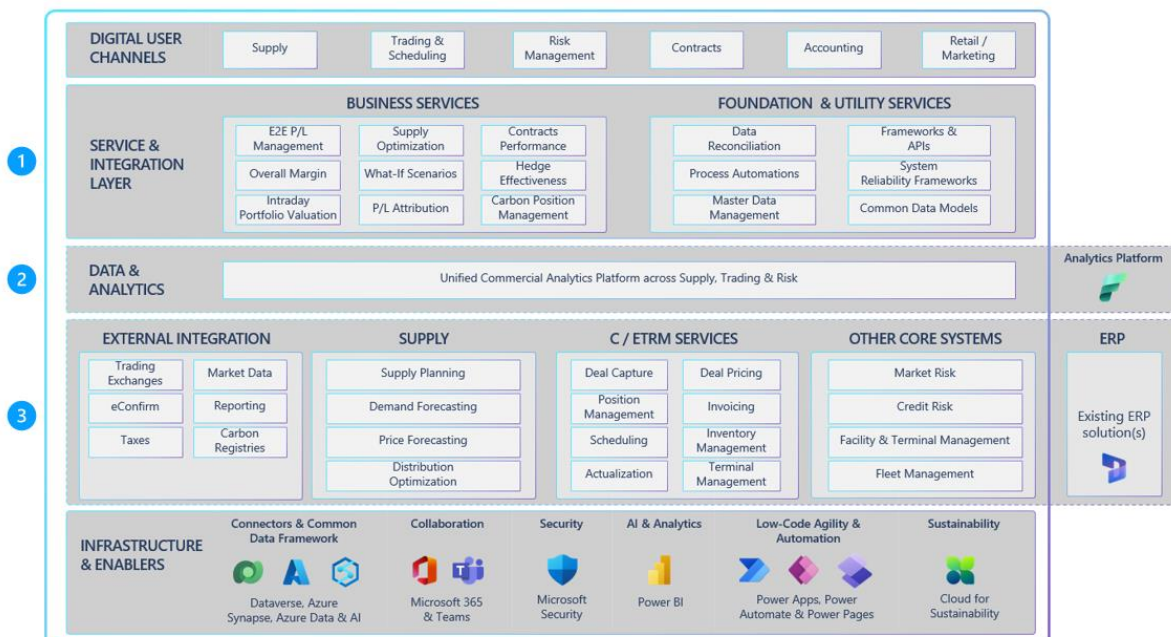
ACCELERATE VALUE WITH ARTIFICIAL INTELLIGENCE-ENABLED WORKFLOWS

One of the most significant benefits of moving to a data-centric architecture across Supply, Trading and Risk is the ability to unlock AI and Generative AI-enabled use cases.

Imagine traders using simple queries to analyze third-party demand forecast predictions, generate simulated forecasts, and get recommendations on hedge positions and value optimization. Demand forecasting is just one of a long list of potential use cases for real-time decision support across the front, mid and back office.

AI AND GENERATIVE AI-ENABLED USE CASES ACROSS SUPPLY, TRADING AND RISK

	VCO* / Front Office	Middle Office	Back Office
Supply, Trading & Risk AI + Generative AI-enabled Use Cases	• Demand forecasting • Market simulation • Price forecasting • Schedule generation • Sentiment analysis • Policy and regulatory impact • Optionality and arbitrage opportunities	• Credit ratings and scoring • DOA & credit limits assessment • Trade reviews and comparison • Contract review and analysis • Contract generation • Risk policy violations • Bid and offers • Automated hedging	• Automated reconciliation reporting • Invoice matching • Multi-variable data quality checks • Management reporting • Financial statement generation • Regulatory reporting • Independent monitoring of changes in regulation

Corporate Generative AI-enabled Use Cases

Connected Workforce, i.e., Employee Chat & Help Desk

Information Discovery, i.e., expedite analysis by querying disparate document types and sources such as contracts, financials, etc.

Co-pilots for M365, BI, Development, etc., i.e., prompt co-pilots to create content, visualizations, apps, etc.

*Value Chain Optimization

AI-enabled business use cases will define the next generation of Supply, Trading and Risk operations. Organizations that embrace artificial intelligence will accelerate their ability to thrive during the Energy Transition by improving margins, dramatically enhancing productivity, and developing transformative capabilities and new revenue streams.

Embarking on the *Transformation Journey*

A critical first step in shifting from a C/ETRM-centric architecture to a data-centric digital ecosystem across Supply, Trading and Risk is to define a framework for your transformation journey—one that prioritizes business outcomes and maps to a relevant value case.

Foundational activities to consider when defining the framework to move from a C/ETRM-centric architecture to a data-centric Supply and Trading ecosystem include:

- Decoupling front, middle, and back-office systems

- Identifying and reducing/eliminating shadow systems

- Using containers to migrate from in-house storage and compute to the cloud

- Federating and contextualizing data within the cloud to enable extensive analysis

Executing these steps while identifying, automating, and eliminating low-value add tasks will reduce complexity and risk, and deliver more than enough cost savings to fund the next phase of transformation: implementing platform-level AI and Generative AI, innovation, and collaboration capabilities to unlock new business use cases such as:

- Creating dashboards with real-time insights based on streaming market and peer data and intraday visibility to key trading and risk, portfolio, and financial metrics

- Leverage AI and Generative AI to enable trader decision support and trade recommendations

- Automating trend and trade analysis, contract reviews, and terms and conditions evaluation

- Developing a user-friendly, mobile, integrated trading view with co-pilot capabilities

- Optimizing and automating scheduling recommendations and contract generation

- Integrating open-source risk analytics

Finally, your organization can start creating incremental value for the business by developing transformative capabilities and new revenue streams:

- Cross-commodity, multi-jurisdiction portfolio optimization

- End-to-end auditability and full-cycle cost analytics

- Carbon credit marketplace development and new energies trading

- Transaction management with shared ledgers

- Data, intelligence, algorithms, and application monetization

The key to success is to first unlock the value that already exists (H1) and then to build upon it to enable new capabilities (H2), and finally to create incremental value for the business through transformative capabilities and new revenue streams (H3).

TRANSFORMATION JOURNEY FRAMEWORK
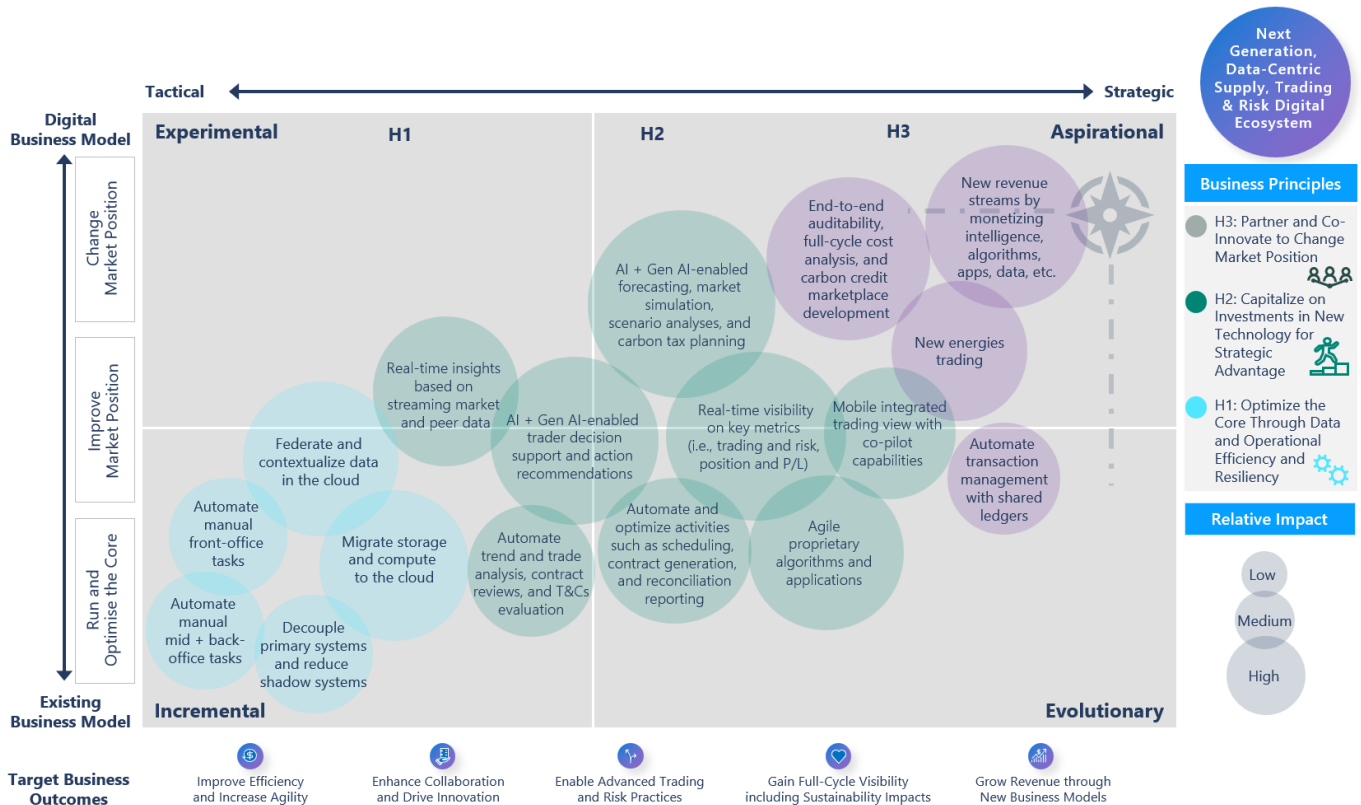
Prioritizing where to start and how far to take your journey should be based on your organization's unique market position, ambitions, and transformation vision.

Enabling the future
with Publicis Sapient and Microsoft

Leading Energy companies around the world are partnering with Publicis Sapient and Microsoft to drive strategic digital transformation initiatives across their business.

Examples of how Publicis Sapient and Microsoft are helping our Energy clients rethink and evolve their business models to respond to the complexities and volatility of the global energy market include:

How a top global oil and gas company adopted Infrastructure as a Service (IaaS) on Azure Cloud to reduce their C/ETRM Total Cost of Ownership (TCO)

IMPERATIVE FOR CHANGE

The U.S.-based oil and gas company wanted to improve the scalability and operational efficiency of its existing C/ETRM systems and infrastructure footprint. The organization also wanted to reduce total cost of ownership and optimize hardware utilization and investment.

TRANSFORMATIVE SOLUTION

Publicis Sapient implemented infrastructure-as-a-service (IaaS) to host and manage its existing systems using Microsoft Azure Cloud, SQL Database, Table and Blob storage. This service aimed to optimize the provisioning and cost of applications and hardware, while increasing capacity, performance, and scalability.

BUSINESS IMPACT

The solution increased capacity and on-demand scalability based on system performance, in addition to delivering the following outcomes:

- **25% reduction in TCO** with license-as-a-go service software and pay-as-you-go hardware utilization models
- **80% decrease in time to provision** new hardware while optimizing capital investment with actual utilization trends.

How Chevron unlocked business value by migrating their supply data platform to Azure

IMPERATIVE FOR CHANGE

Chevron manages 200+ data pipelines and ingests supply data from various internal and external sources to standardize and share it across functions responsible for managing the flow of crude oil and refined products. Chevron needed to replace their legacy on-premise supply data platform and wanted to implement a solution that would improve collaboration and decision-making, reduce upgrade and disruption costs, and give them the power to scale.

TRANSFORMATIVE SOLUTION

Publicis Sapient and Chevron designed and implemented a cloud-based solution in Azure, successfully converting 200+ data integration jobs in Azure Data Factory, modelling and migrating 400 data tables, storing 450 procedures and queries, and migrating a data quality engine without disrupting the business.

BUSINESS IMPACT

Migrating the data foundation to Azure has minimized support and disruption costs and improved operational capabilities resulting in:

- **45% of queries** being completed faster
- Launch of **self-service business intelligence** for seamless data exploration and analysis
- **Minimized** support and disruption costs
- Improved ability to **develop, test, and deploy** changes
- Improved capability to **enhance and scale** the platform

As noted by **Troy Engstrom, Senior Manager, Digital Carbon Management at Chevron**: "We can now easily deploy advanced analytics services, including AI, quickly and easily on top of our existing data assets. Integrating those on-premise would take significantly longer."

Create *your digital future*

To win in a world of accelerating change, Energy companies must invest in digital capabilities that reduce complexity, increase scalability, and enable rapid adaptation.

Partner with Publicis Sapient and Microsoft to define those capabilities and develop a secure, scalable, data-centric digital ecosystem across Supply, Trading and Risk that drives a virtuous cycle of efficiency gains and transformational value creation.

Let's create the future of Energy Supply, Trading and Risk Management together.

For more information, please contact energyandcommodities@publicissapient.com.

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Publicis Sapient is a digital business transformation company. We partner with global organizations to help them create and sustain competitive advantage in a world that is increasingly digital. We operate through our expert SPEED capabilities: Strategy and Consulting, Product, Experience, Engineering and Data, which combined with our culture of curiosity and deep industry knowledge, enables us to deliver meaningful impact to our clients' businesses through reimagining the products and experiences their customers truly value. Our agile, data-driven approach equips our clients' businesses for change, making digital the core of how they think and what they do. Publicis Sapient is the digital business transformation hub of Publicis Groupe with 20,000 people and over 50 offices worldwide. For more information, visit https://www.publicissapient.com.

Microsoft

Microsoft for Energy & Resources

Transform the energy and resources industry and achieve net zero with technology innovation to deliver safe, reliable, clean energy for a sustainable future. Microsoft enables companies to drive digital transformation, decarbonize, and achieve growth. With Microsoft, energy operators and providers have access to a global partner ecosystem and modern productivity platform at the scalability and reach they need with the security to protect their IP assets, operations, and data. By uniting productivity, intelligent cloud, intelligent edge, AI, and big data platforms, Microsoft helps companies solve their most complex challenges, accelerate the energy transition, and deliver better outcomes.